

The new Royal Navy Mk. 2 mobile submarine —
a quarter size model of a Fleet submarine

Programme of
visits

ROYAL NAVY MOBILE SUBMARINE EXHIBIT

Special souvenir

26 March London White
City — LAUNCHING
29 March Watford Local
Gala
2 May Oxford Show
7-11 May Leamington Spa
12 May Rhyl
6 June Navy Fair Rosyth
16-18 June Three Counties
Show, Malvern
20-27 June Taunton and
Somerset Show
2-4 July Newport Festival
11-14 July Nottingham
Festival
16-18 July Liverpool
Show
23-25 July St. Helens
Show
31 July-1 August Hull
Show
5-11 August Tyneside
Show
15 August Darlington
Show
24-28 August Prestatyn
31 August-5 September
Devizes
12 September Wolverton
Carnival
19 September Battle of
Britain, RAF Finningly



Taking a bearing

FLEET

SUBMARINE

The Ocean giants

H.M.S. Valiant
— Fleet submarine



NUCLEAR powered Fleet submarines, as deadly as a battle fleet of the past, are giants of the ocean underworld.

Fast, silent, agile as a fish, they are free to roam the seas to protect our warships and merchant fleets and seek out and destroy enemy ships and submarines.

Like their bigger sisters, Polaris submarines (see back page), they can disappear beneath the waves to pop up in any part of the world. They can land assault or reconnaissance parties, or remain silent and deep outside enemy bases, homing torpedoes ready for the kill. They can range far ahead and around a convoy to protect it from the enemy.

They are worlds of their own, free even from the air. Special air-conditioning plant enables them to stay below the surface almost indefinitely. (Electrolytic gills extract life-giving oxygen from the sea.)

Out of sight of friendly stars by which to navigate, they use a "magic box" called Ship's Inertial Navigation System, SINS for short. This keeps an eye on the submarine's movements and provides a continuous report on her position.

The control room looks like that of an aircraft or spaceship, and in fact at

high underwater speeds — over 30 knots — the submarine handles just like an aircraft, with a powered control column which works the rudders and hydroplanes. They can dive and bank and are quite capable of aquabatics! They can be set on course and depth by automatic pilot and can communicate with their base while submerged.

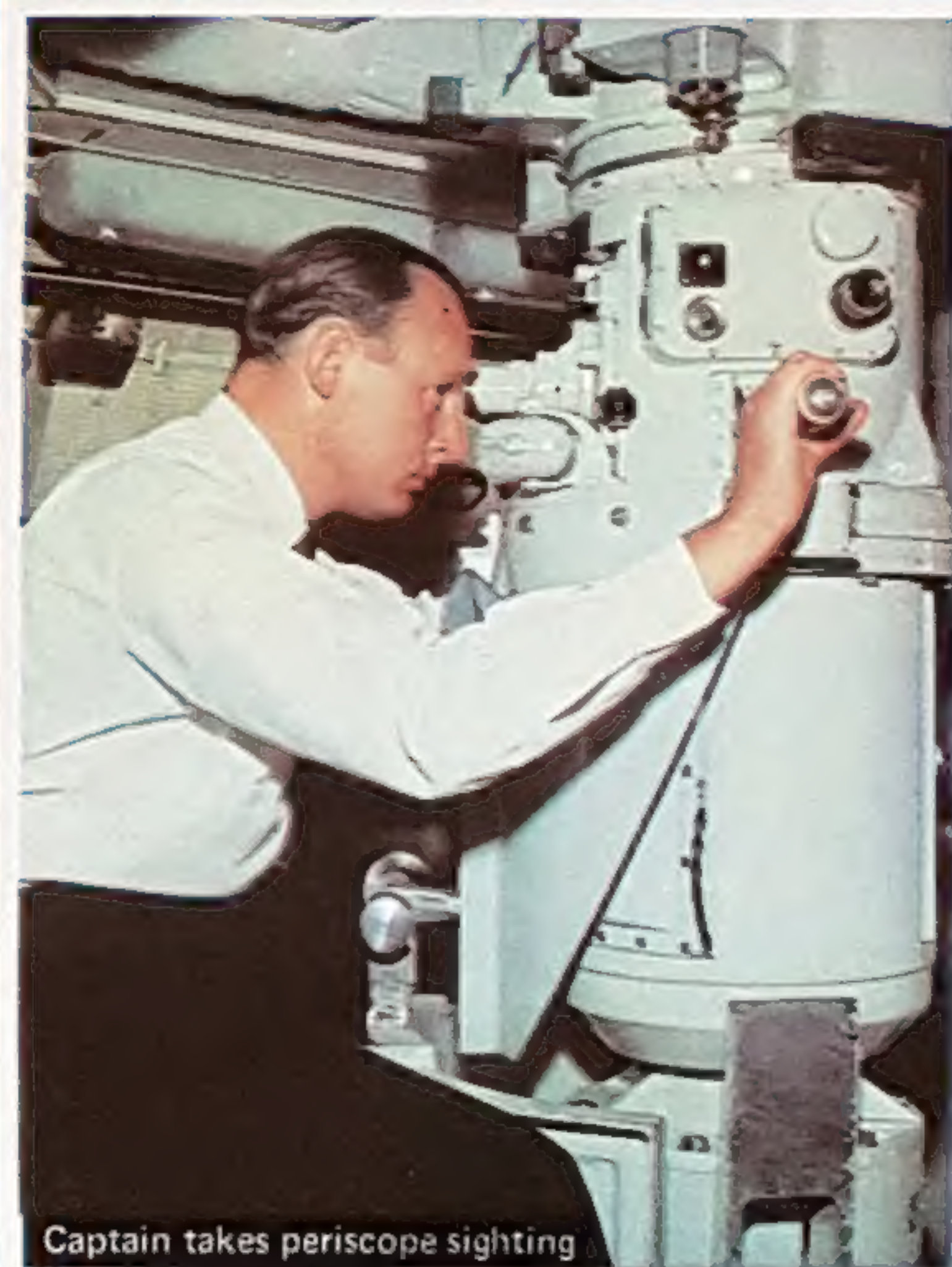
MAIN ARMAMENT

Fleet submarines have long range detection equipment which can locate enemy vessels on or below the surface. Main armament consists of homing torpedoes.

Each submarine is 285 feet long, has a beam of 33 feet and displaces over 3,500 tons (more when submerged). The 'A' Class — wonder of the age 65 years ago — were a mere 100 feet long, displaced 200 tons and had a crew of 14.

The Fleet submarine today is crewed by 11 officers and 88 ratings.

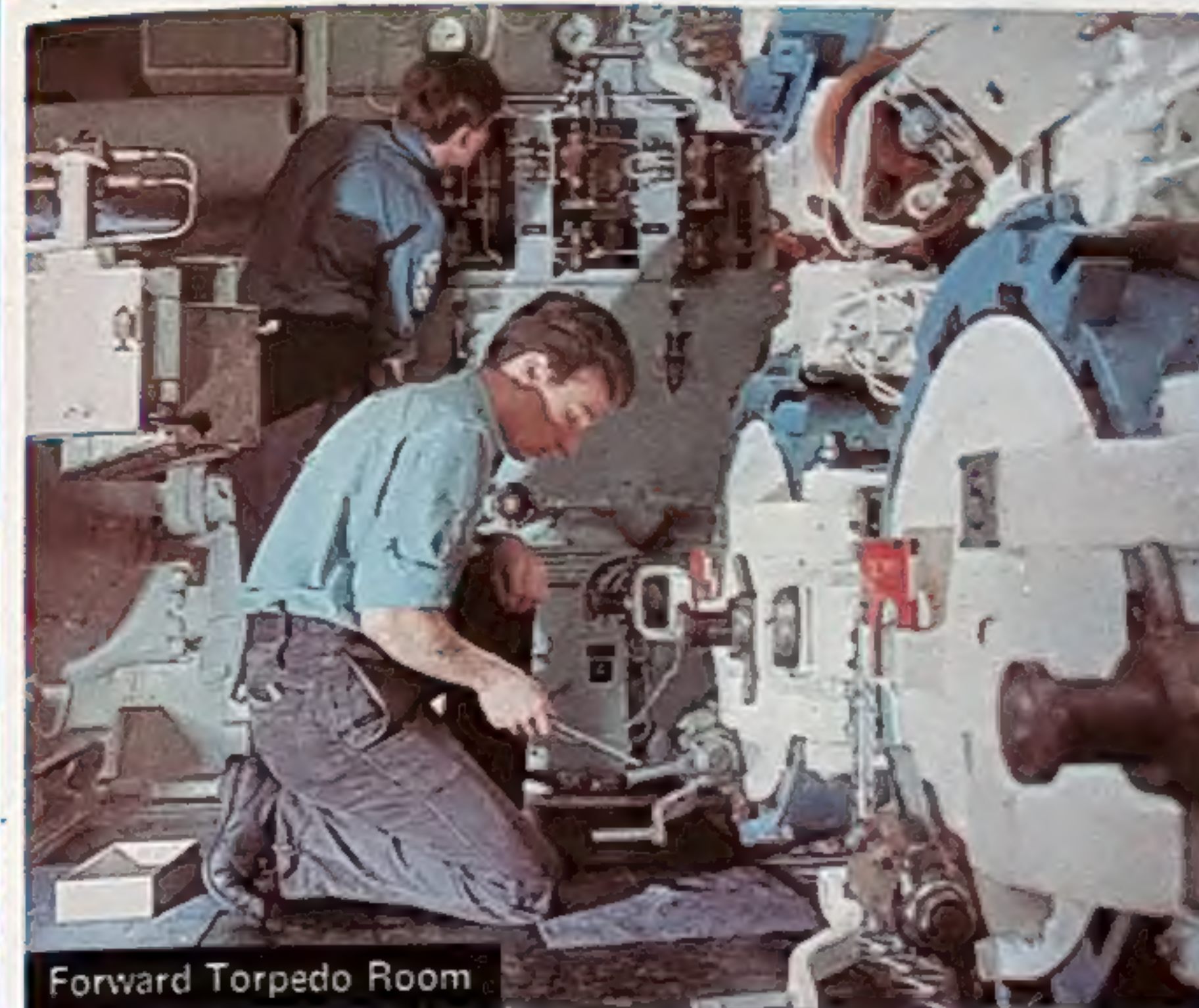
Britain is to have a fleet of eight Fleet submarines. *Dreadnought*, *Valiant* and *Warspite* are in service, *Churchill* is next, then *Conqueror*. The others are on order.



Captain takes periscope sighting



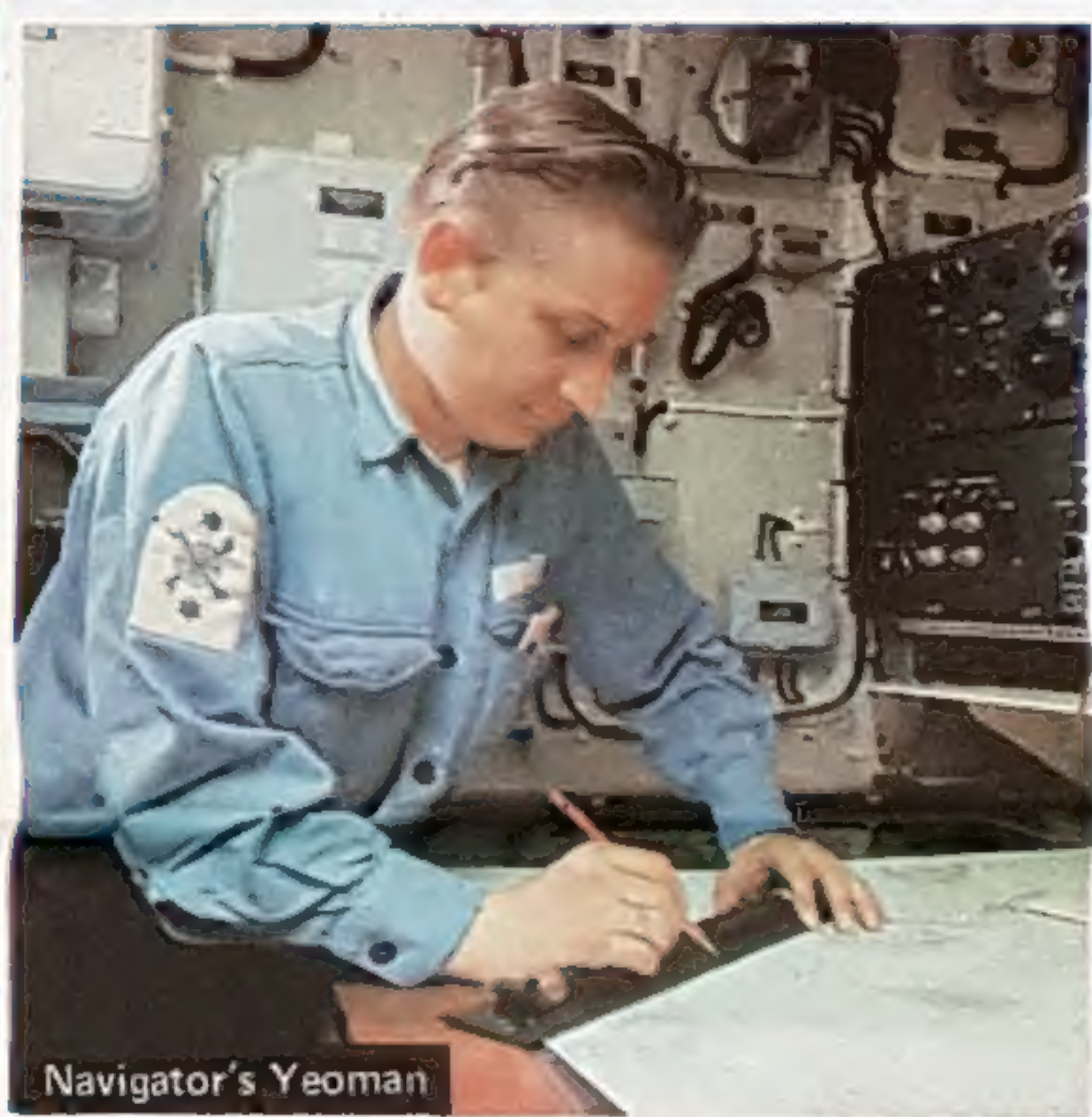
Surface Look-out



Forward Torpedo Room



Surfaced



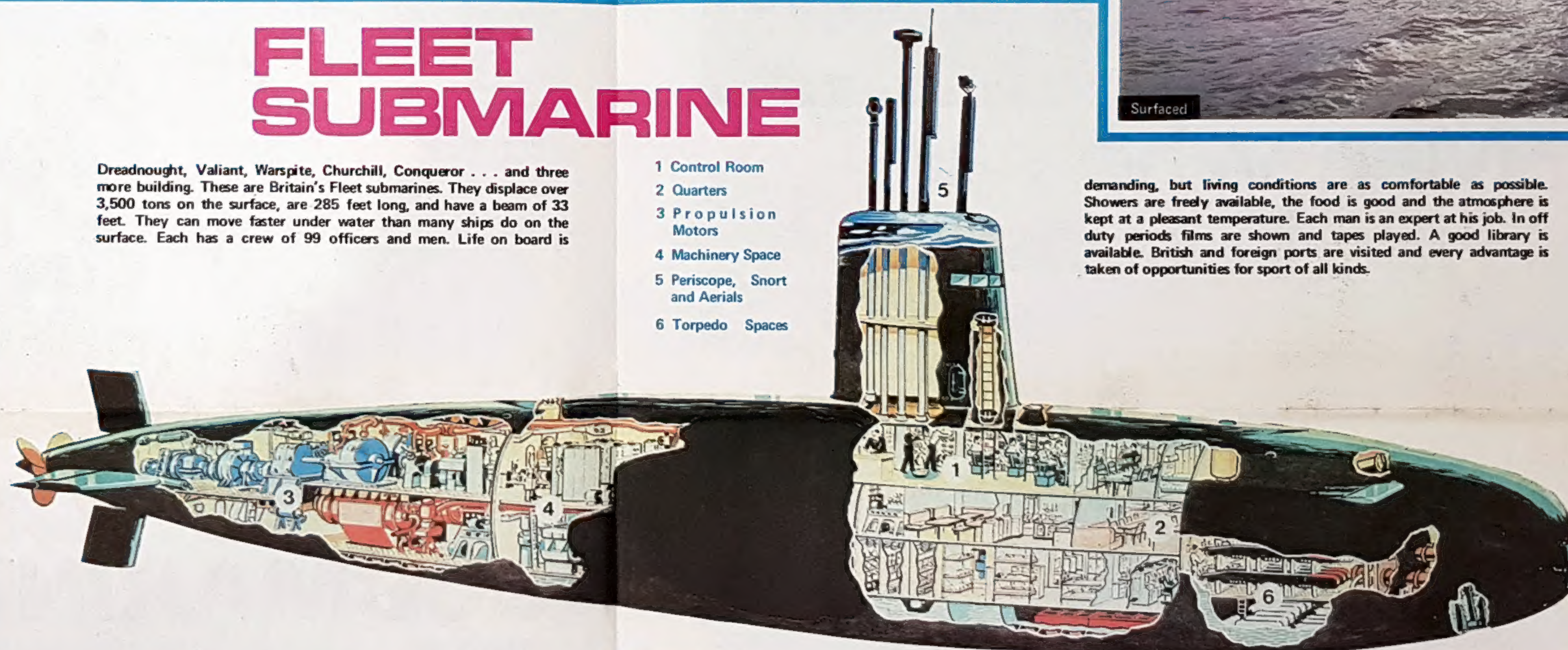
Navigator's Yeoman

FLEET SUBMARINE

Dreadnought, Valiant, Warspite, Churchill, Conqueror . . . and three more building. These are Britain's Fleet submarines. They displace over 3,500 tons on the surface, are 285 feet long, and have a beam of 33 feet. They can move faster under water than many ships do on the surface. Each has a crew of 99 officers and men. Life on board is

- 1 Control Room
- 2 Quarters
- 3 Propulsion Motors
- 4 Machinery Space
- 5 Periscope, Snort and Aerials
- 6 Torpedo Spaces

demanding, but living conditions are as comfortable as possible. Showers are freely available, the food is good and the atmosphere is kept at a pleasant temperature. Each man is an expert at his job. In off duty periods films are shown and tapes played. A good library is available. British and foreign ports are visited and every advantage is taken of opportunities for sport of all kinds.



Plotting Underwater Contact



Lunch Beneath the Waves



Off-Duty Beat



Control Position

LIFE BENEATH THE SEA

BECAUSE of the relatively small size of a nuclear reactor and the absence of conventional fuel tanks, the accommodation for the crew of a Fleet submarine is unusually spacious.

There are three deck levels. On the top deck, next to the control room, is the wardroom and officers' quarters. The deck below houses separate mess-rooms for senior and junior ratings. The junior ratings sleep on the lowest deck.

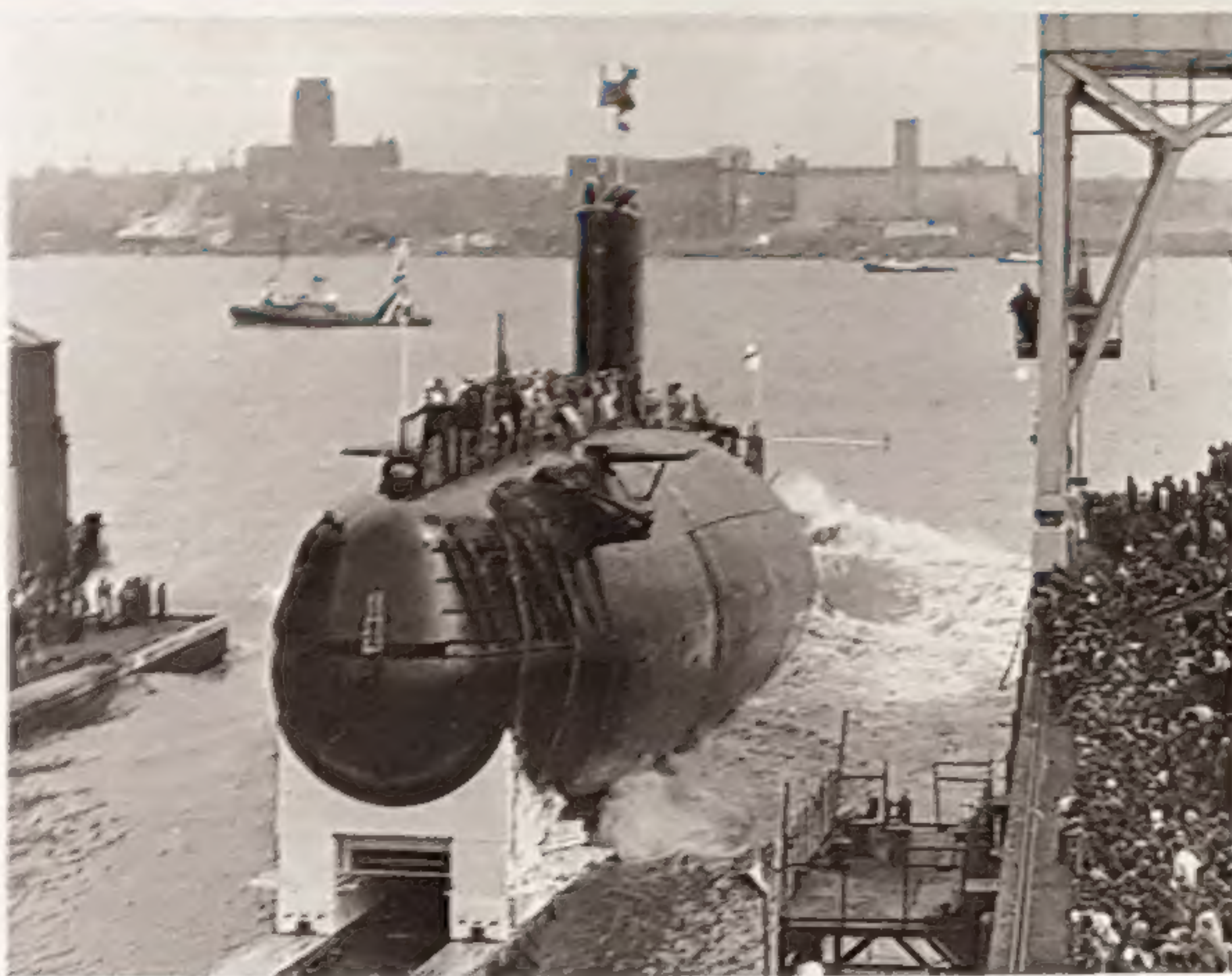
Hammocks are a thing of the past — each man has his own bunk, with a locker for his kit.

Great attention is paid to food — the sailors make sure of this! Meals, cooked in a galley which any housewife would be proud to have, are served on the cafeteria system. At main meals there are three choices of dish. Bread is baked on board.

A water-distilling plant provides unlimited fresh water for showers and serves the laundry — unheard of luxuries to the old-time submariner.

When on prolonged submerged patrol, the ship's company work a "one in three" routine. This means each man's day is divided into four hours on duty at his specialist job, with eight hours off. Everyone has to give a hand in maintaining and cleaning ship, which is usually done in the morning.

In the afternoons instructional classes are held, and the period



Launch of the Royal Navy's fifth — and latest — Fleet submarine, HMS Conqueror.

between tea and supper is devoted to recreation or individual study.

Film shows are held in the evenings, and pop records and tapes are played over the broadcasting system. Other off-watch diversions include various indoor games, painting and model making. Exercise machines are provided for those who want to keep their weight down.

There is no danger from radiation. Exhaustive tests have shown that radiation levels are less than those experienced from the sun's cosmic rays. However, regular checks are made.

Polaris missile (below) — and beneath it HMS Resolution, one of Britain's nuclear-powered Polaris submarines.



WHAT sort of men sail in the Fleet submarine?

Who can spend weeks chasing about the ocean depths in a steel tube full of the most complicated engineering and computer equipment you can think of? Supermen? No, not really!

They are ordinary men who have been trained to be tough professionals, seamen dedicated to demanding jobs requiring skill. Each man knows that the survival of his shipmates depends on his competence. The submarine has no room for passengers.

They get their sealegs in surface warships before specialising as submariners. Most of them are volunteers.

Ratings serve initially for five years and can then volunteer for further time in the branch — until they leave the Navy if they wish.

Before he is entitled to wear the submarine badge and cap tally, each man attends a specialist training school, has four months at sea, and then has to pass an examination. When qualified he gets extra pay.

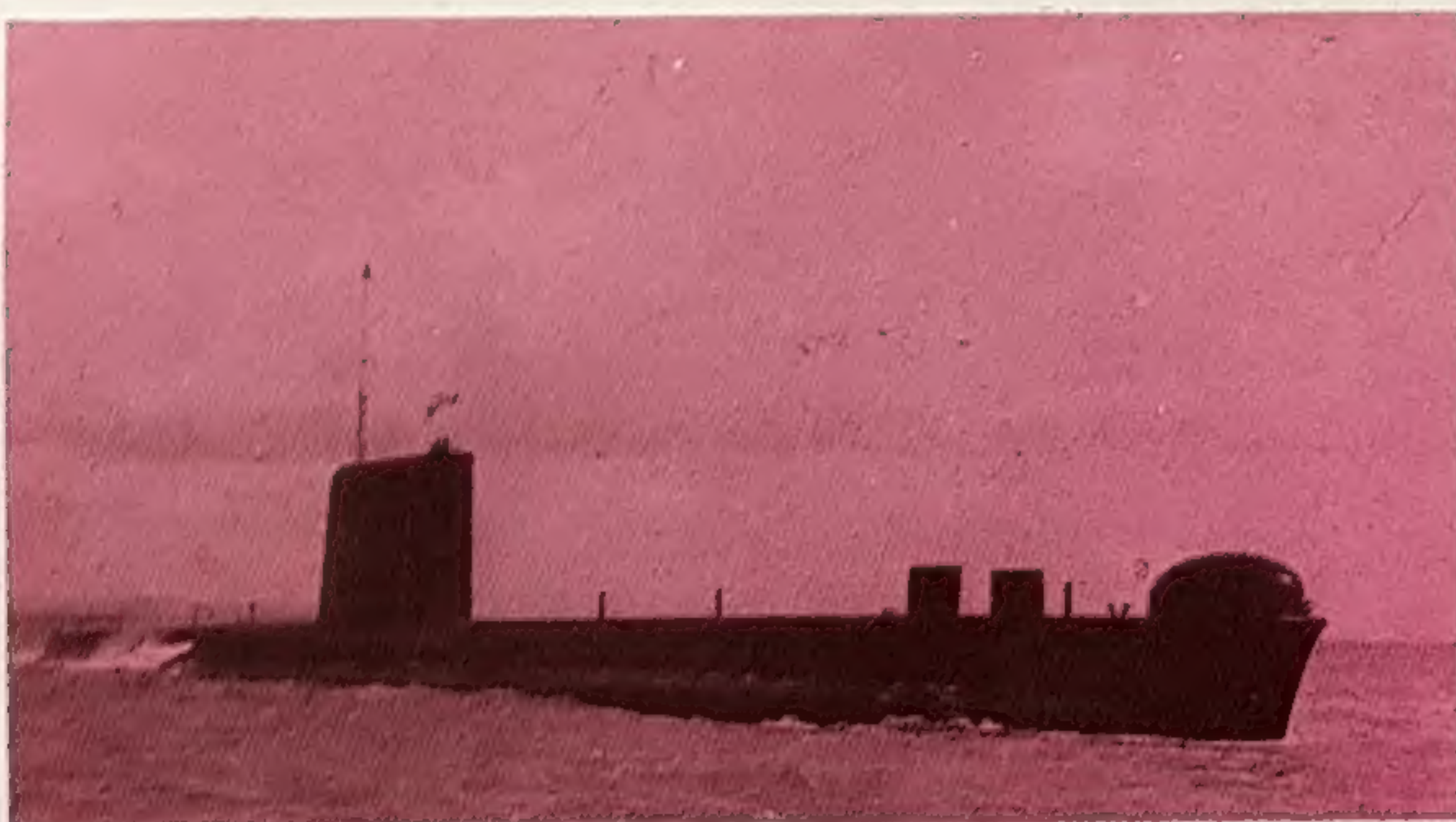
Officers normally serve in submarines for several years and can reach the rank of lieutenant commander. Subsequent submarine service depends on promotion and appointments available.

Because of their knowledge and skill, many submariners transfer to good jobs in industry and research when they leave the Navy.

The main base for nuclear submarines is at Faslane, on the Clyde. Every item of submarine gear can be repaired or replaced within 70,000 square feet of workshops and computerised stores.

First-class living conditions exist for submariners whose vessels are refitting, and there are houses for married men. Nearly 1,000 houses have been built for shore staff and their families at Faslane, and nearby Helensburgh, and Faslane is now a close-knit township.

A Nuclear Facilities Base opened at Chatham in 1968 and later this year some of the nuclear Fleet submarines will be based at Devonport.



The patrol submarine HMS Olympus.

WORK HORSES

In Submarine Command are some 40 conventionally-powered patrol submarines, the sturdy work-horses of the underwater fleet. They carry out most of the routine operations and patrols, both at home and abroad.

These sleek, 280-foot steel cylinders, topped by tall, narrow, conning towers, are packed with complicated electronic and hydraulic equipment. They displace 1,600 tons and have a crew of seven officers and 60 ratings.

Diesel-electric engines give them a high, silent underwater speed. Modern detection gear, homing torpedoes and radar make them formidable and evasive adversaries.

Polaris — the peacekeeper

With a fleet of four nuclear-powered Polaris submarines the Royal Navy has taken over Britain's contribution to the strategic deterrent of the Western powers. They are Resolution, Repulse, Renown and Revenge, truly massive submarines which displace more than the guided missile destroyer.

Each submarine carries 16 Polaris missiles, giving it a greater fire power than all the bombs dropped by both sides during the Second World War. Fired from the depths of the ocean, the missile can devastate a region 2,500 miles away. This range is important. No place on earth is more than 2,500 miles from the sea.

Once at sea the submarine is lost to the enemy, its almost unlimited endurance allowing it to range the oceans with little fear of detection. Like the Fleet submarine, it is independent of shore bases and does not surface for air. But the crews know that if they have to fire a missile their mission has failed. Polaris is a peacekeeper.

The submarine is 420 feet long, has

a beam of 33 feet, and a displacement of 7,500 tons. It has high underwater speed and is very manoeuvrable.

THREE DECKS

The three decks offer good accommodation for crews. Each submarine has two crews, known as Port and Starboard, and when one is away on patrol the other is training or taking leave.

Polaris itself, is a two-stage ballistic missile powered by solid fuel rocket motors. It is 31 feet long, four feet six inches in diameter and weighs 28,000 pounds.

Each submarine spends a month at Port Canaveral, part of the Cape Kennedy space-age complex in the United States, so that both Port and Starboard crews can test-fire a missile.

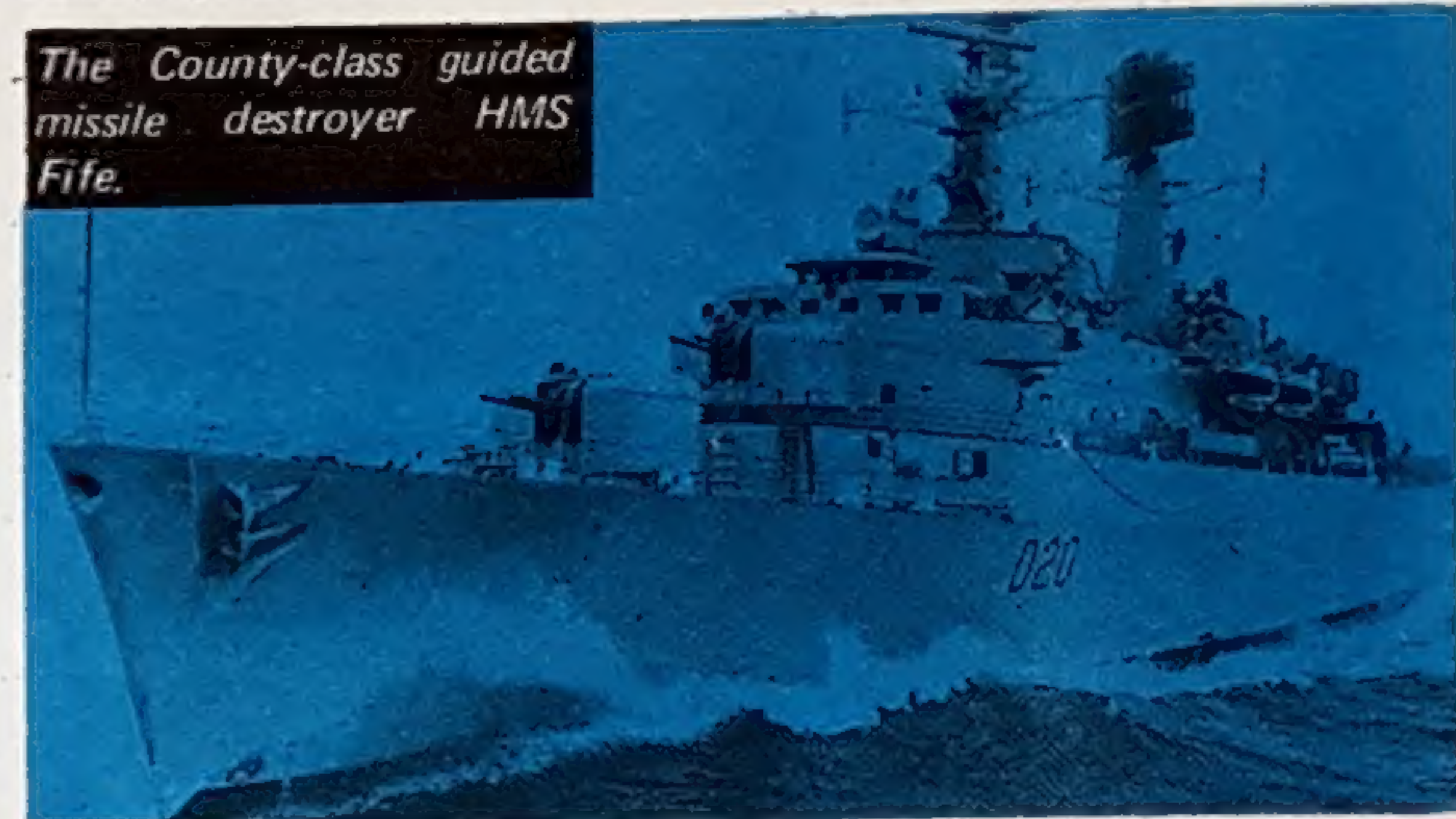
Royal Navy of the Seventies

The Navy of the Seventies has been given the vital job of supporting our NATO allies and defending our nation. Ships will spend more time in European waters, but the White Ensign will still proudly fly throughout the world.

The strongest fleet in Western Europe, the Royal Navy has a greater striking power than ever before. As well as submarines, she has streamlined warships equipped with deadly, computer-controlled missiles and guns, sophisticated detection systems and helicopters for carrying troops and destroying submarines.

Ships in service include the fine-looking County class guided missile destroyers with Seaslug ship-to-air missiles, and a Wessex helicopter for killing submarines, assault ships which operate helicopters and have tank landing craft which "swim" in and out of a dock in the stern; command ships which use helicopters to land and

The County-class guided missile destroyer HMS Fife.



support a Royal Marines Commando unit; a cruiser which carries four anti-submarine helicopters and has facilities for commanding a naval task force.

There are numerous frigates, including the highly successful Leander class, each of which has a Wasp anti-submarine helicopter and fires Seacat anti-aircraft missiles.

Other ships include minehunters and minesweepers which have many roles besides destroying mines; ocean and coastal survey ships, hovercraft, and an ice patrol ship, HMS Endurance.

Aircraft carriers will continue to play a major role until they are phased out in the early seventies. The refitted HMS Ark Royal has the supersonic all-weather fighter-ground attack Phantom aircraft.

The Navy is setting the pace in the development of new ships, aircraft and armament. Future ships will be powered by gas turbines — HMS Exmouth is already — and equipped with new missiles.

A new missile destroyer, HMS Bristol, now being built, will be the proving ship for Sea Dart, a ship-to-air missile, and Ikara, an anti-submarine weapon.

The first of a new class of destroyer, Type 42, also under construction, will have the high speed W.G. 13 anti-submarine helicopter, Sea Dart, and a new type of 4.5 inch gun.

The first Type 21 frigate has been laid down, and the true successor to the Leanders, Type 22, is being designed. This will operate Sea Wolf, an anti-aircraft and anti-missile missile, and have a W.G. 13 helicopter. A new command cruiser and a new type of mine countermeasures ship are being planned.

As throughout history, the Royal Navy leads the way.



Cruiser HMS Blake and (below) in-flight refuelling of Wessex helicopter from frigate HMS Rothesay.



Accept a challenge?

Skill at recognising silhouettes of Navy ships will win you a pack of the Navy's own exclusive playing cards. Visit your nearest Navy Careers Office and try your luck. Winners can enter a special competition!

NRP 56-3244

Your Questions Answered Here

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